

**Original article****Oesophageal varices in patients with liver cirrhosis****A.O. Ajayi^{a,*}, E.A. Ajayi^a, T.H. Raimi^a, J.O. Fadare^a, O.A. Solomon^b, A.O. Adeoti^a**^a*Department of Medicine, Ekiti State University Teaching Hospital, Nigeria.*^b*Department of Family Medicine, Ekiti State University Teaching Hospital, Nigeria.*

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ABSTRACT

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About one third of cirrhotic patients with oesophageal varices (OV) develops an episode of oesophageal hemorrhage, and subsequently has high morbidity and mortality. Early detection and prevention of OV in these patients are crucial to minimizing complications. This study was carried out to determine the prevalence of OV among the cirrhotic patients at our institution. Fifty six patients with liver cirrhosis who had upper gastrointestinal endoscopy done were recruited into the study. The study was carried out at the Ekiti State University Teaching Hospital, Ado –Ekiti, between January 2010 and December 2011. Liver cirrhosis was diagnosed on the basis of liver biopsy, clinical and ultrasound findings. At the point of recruitment, a full medical history was taken. The severity of liver disease was assessed according to Child's classification. All the patients underwent upper gastrointestinal (GIT) endoscopy. The diagnosis of variceal bleeding was confirmed if an actively bleeding varix or a varix with adherent clot was seen. The following endoscopic features were recorded during the procedure: size, colour, and location of varices (oesophageal, fundal or portal gastropathy) and the presence of "red signs". Ethical approval for the study was obtained from hospital's Ethics Committee and all the patients gave their individual signed consent. SPSS version 15.0 (SPSS, Inc., Chicago, Illinois, USA) was deployed for statistical analysis using the t-test for quantitative variables and χ^2 test for qualitative variables. Differences were considered to be statistically significant if P value was less than 0.05. Fifty six cirrhotic patients comprising of

37 males and 19 females were recruited into the study. The Male: Female ratio was 1.9:1. The mean age for males was 51.6±10.2, while that of the females was 55.4±10.6. Oesophageal varices were found in 30 of the 56 patients giving an overall prevalence rate of 53.6%. All the varices were oesophageal in location; 73.3% (22/30) were males while 26.7% (8/30) were females. A large proportion (64.3%) of the patients were in Child's grade A, while 28.5% were in Child's Grade B and only 7.1% were in Child's Grade C. Endoscopically, 13 of the varices were small (F1), 10 were medium sized (F2) while 7 were of large size (F3). The statistically significant risk factors for oesophageal varices found in this study were hepatitis B virus infection and tattoo marks. The prevalence of oesophageal varices in cirrhotic patients in this study was 53.6%. Upper gastrointestinal endoscopy is therefore recommended in the cirrhotic patients to ameliorate the risk of bleeding and the related high mortality.

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1. Introduction

Oesophageal varices due to portal hypertension are a major concern in cirrhotic patients because of the risk of bleeding and related high mortality (Bosch et al., 2008). The prevalence of oesophageal varices in patients with cirrhosis has been reported to be 80%–90% (Lay et al., 1997; D'Amico et al., 1999). Approximately one third of cirrhotic patients with oesophageal varices develops an episode of oesophageal hemorrhage, and subsequently has high morbidity and mortality. About 20–35% of patients do not survive the first bleeding episode; those who survive will rebleed within 6 months in up to 70% of the cases, with an overall 2-year survival rate of only 30–40% after the initial episode (Graham et al., 1981; Sarin et al., 1999).

Variceal bleeding is the most serious complication of portal hypertension (Arguedas et al., 2002; Sarin et al., 2002; Grace, 1997). The annual incidence of variceal bleeding is 5% for small varices and 15–20% for large ones, both with mortality rates ranging from 20 to 25% in the first week (Sharma et al., 2007). The risk of death remains unchanged for up to 6 weeks after the bleeding and varies between 15 and 30% (de Franchis et al., 2008; Roberts et al., 1996).

Therefore, in cirrhotic patients, detection and prevention of the first oesophageal variceal hemorrhage are crucial to minimize complications.

The American College of Gastroenterology and V Meeting of Baveno Consensus recommend upper gastrointestinal endoscopy (UGE) for all patients with cirrhosis for decreasing the risk of variceal bleeding and for detection of oesophageal varices at the time of their diagnosis (de Franchis, 2010).

Results of several studies have demonstrated that the development or progression of oesophageal varices can be treated successfully and further oesophageal bleeding can be prevented by using beta blockers or endoscopic variceal ligation (Schepke et al., 2004); consequently, the mortality of patients with cirrhosis can be reduced (Tripathi et al., 2001).

Literature is scanty about the prevalence of oesophageal varices in Nigeria; however a study in Northern Nigeria among chronic liver disease patients reported a prevalence of 75% (Aching et al., 2011). This study was carried out to determine the prevalence of oesophageal varices in cirrhotic patients presenting at the Ekiti State University Teaching Hospital, Ado Ekiti, South West, Nigeria.

2. Materials and methods

Fifty six consecutive patients diagnosed as cirrhotics who had UGE done were recruited into the study. The study was carried out at the Ekiti State University Teaching Hospital, Ado –Ekiti, between January 2010 and December 2011.

Liver cirrhosis was diagnosed on the basis of liver biopsy, clinical and ultrasound findings. Ethical approval for the study was obtained from hospital's Research and Ethics Committee and all the patients gave their individual written consent.

At the point of recruitment, a full medical history was taken. All patients underwent a complete physical, ultrasound and routine laboratory examinations. The severity of liver disease was assessed according to Child's classification [Table 1]

Table 1

Child's classification of hepatocellular dysfunction in liver cirrhosis. Adapted from Sherlock and Dooley (Sherlock et al., 1997).

Child's Group	A	B	C
Serum Bilirubin (mg/dl)	<2.0	2.0-3.0	>3.0
Serum Albumin (g/dl)	>3.5	3.0-3.5	<3.0
Ascites	None	Easily controlled	Poorly controlled
Neurological disorder	None	Minimal	Advanced coma
Nutrition	Excellent	Good	Poor ("wasting")

All the patients underwent UGE. The diagnosis of variceal bleeding was confirmed if an actively bleeding varix or a varix with adherent clot was seen. The following endoscopic features were recorded during the procedure: size, colour, and location of varices (oesophageal, fundal or portal gastropathy) and the presence of "red signs".

The size of varices was classified according to the following criteria:

1. Small (F1): the varices can be depressed by the endoscope.
2. Medium (F2): the varices cannot be depressed by the endoscope.
3. Large (F3): the varices are confluent around the circumference of the esophagus.

SPSS version 15.0 (SPSS, Inc., Chicago, Illinois, USA) was applied for statistical analysis using the t-test for quantitative variables and χ^2 test for qualitative variables. Differences were considered to be statistically significant if P value was less than 0.05.

3. Results

Fifty six cirrhotic patients comprising of 37 males and 19 females were recruited into the study. The Male: Female ratio was 1.9:1. The mean age for males was 51.6 ± 10.2 , while that of the females was 55.4 ± 10.6 . The age range for the study was from 30-74 years. Majority (57.1%) of the patients were in the age range 40-59 years. Table 2 shows the characteristics of the study population while figure 1 shows the age distribution.

Oesophageal varices were found in 30 of the 56 patients giving an overall prevalence rate of 53.6%. All the varices were oesophageal in location. Of the 56 patients, 64.3% (36/56) were in Child's grade A, while 28.5% (16/56) were in Child's Grade B and only 7.1% (4/56) were in Child's Grade C. Of the total 30 that had oesophageal varices, 33.3% (10) were in Child's Grade A, 53.3% (16) in Child's Grade B, and 13.3% (4) in Child's Grade C. This was found to be statistically significant [$\chi^2 = 26.963$, $\alpha = 0.05$ i.e. 95% confidence interval and $p = 0.001$]. Endoscopically, 13 of the varices were small (F1), 10 were medium sized (F2) while 7 were of large size (F3). All the 4 patients in Child's Grade C had large varices endoscopically. The distribution of the varices was as shown in table 3. Cirrhosis was related to chronic hepatitis B, tattoo marks, alcohol, and native local concoction in 58%, 30%, 21%, and 16%, respectively. The statistically significant risk factors for the occurrence of oesophageal varices include; hepatitis B virus infection [$\chi^2 = 14.538$, $\alpha = 0.05$ i.e. 95% confidence interval and $p = 0.001$] and tattoo marks [$\chi^2 = 8.130$, $\alpha = 0.05$ i.e. 95% confidence interval and $p = 0.004$].

4. Discussion

The prevalence of oesophageal varices in cirrhotic patients in this study was 53.6%. This was lower than the 75% obtained in the study among chronic liver disease (CLD) patients in the Northern Nigeria by (Aching et al., 2011). This was equally lower than the 60-70% reported by (Samy., 2002; Schepis et al., 2001; Mahassadi et al.,

2012). The difference observed in this study (South West Nigeria) with that from the Northern Nigeria study might be due to the high prevalence of CLD in the Northern part of Nigeria compared to the Southern part (Aching et al., 2011). The prevalence obtained in this study was similar to that of (Hegab et al., 2001).

Table 2

Social and demographic characters according to age and gender.

Characteristics	Mean age	Sample size	%
Age according to Gender:			
Sex			
Male	51.6(10.2)	37	66.1
Female	55.4(10.6)	19	33.9
Age-Group			
Male			
30-39yrs	35.2(2.4)	4	10.8
40-49yrs	44.0(3.3)	11	29.7
50-59yrs	53.4(2.4)	12	32.4
60-69yrs	63.8(3.3)	9	24.3
> 70yrs	71.0(0.0)	1	2.7
FEMALE			
30-39yrs	38.3(1.2)	3	15.8
40-49yrs	46.5(0.7)	2	10.5
50-59yrs	54.7(3.3)	7	36.8
60-69yrs	63.2(2.7)	5	26.3
> 70yrs	72.5(3.5)	2	10.5
Endoscopic findings according to Gender:			
Oesophageal			
Male	51.0(9.3)	22	73.3
Female	50.4(9.2)	8	26.7
Normal			
Male	52.6(11.4)	15	57.7
Female	59.0(10.5)	11	42.3
Childs Grade:			
A			
Male	52.6(10.9)	23	63.9
Female	57.6(10.3)	13	36.1
B			
Male	49.8(10.0)	10	62.5
Female	50.5(10.6)	6	37.5
C			
Male	50.5(7.9)	4	100.0
Female	0(0.0)	0	0.0

All the varices were oesophageal in location in keeping with the observation that gastric varices are less common than oesophageal varices (Sarin et al., 1992). While 27.8% of the patients in Child's grade A had varices, all (100%) the patients in Child's grades B and C had varices. This was similar to the findings of (Pagliaro et al., 1994). This correlates well with the severity of the liver disease. The size of the varices in the patients correlated significantly with the severity of liver disease; a finding similar to results of the work carried out by (Aching et al., 2011). Seventy five (75) percent of the patients had grades 2-3 varices with red signs seen in about 40% and variceal bleeding in 29% of the patients. None of the patients in Child's grade A had variceal bleeding, while all the

patients in Child's grade C had variceal bleeding. This was similar to the findings of (Benedeto-Stojanov et al., 2006).

Table 3
Showing the distribution of the varices among the different age groups.

Age group	Endoscopic findings		Total
	Oesophageal varices	Normal	
30-39yrs	4	3	7
40-49yrs	8	5	13
50-59yrs	11	8	19
60-69yrs	7	7	14
> 70yrs	0	3	3
Total	30	26	56

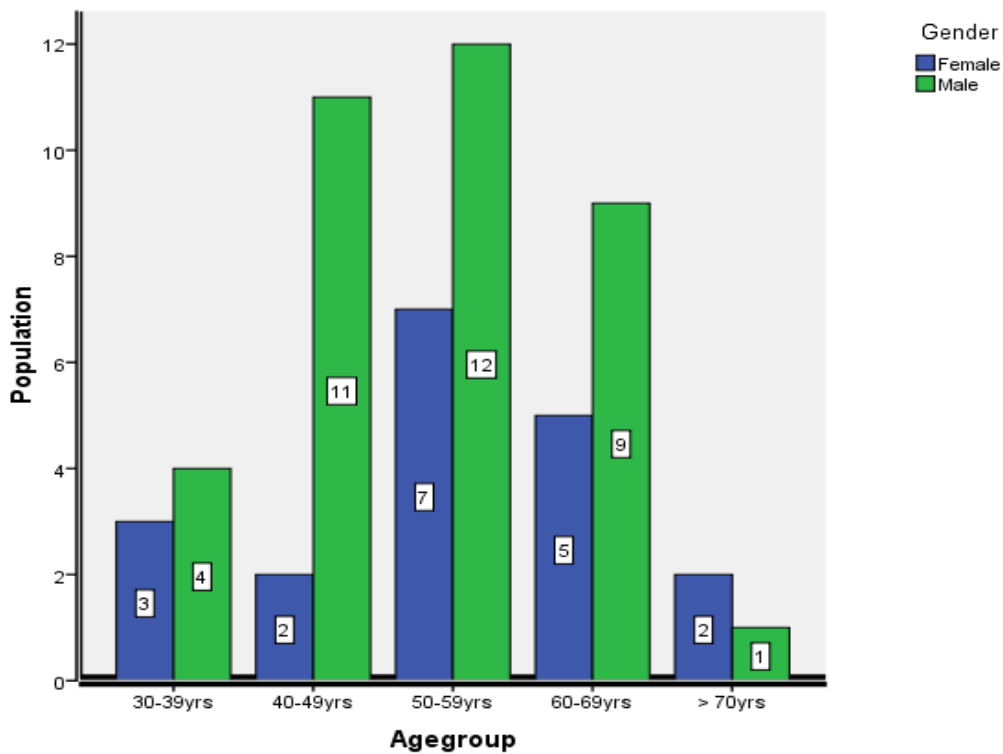


Fig.1. Showing age distribution of the study population.

Factors found which predicted variceal bleeding in this study included red colour signs on varices (cherry red spots), size of the varix, infection, severity and chronicity of the liver disease. Since mortality from a variceal bleeding is usually high (25–50%) (Aithal et al., 2005), prophylaxis against haemorrhage is crucial; therefore, all patients with varices should be placed on a non-selective beta-adrenergic blocker (e.g. propranolol), with the beta-blocker titrated to cause a 25% decrease in resting heart rate to a minimum rate of 55 beats min. This is directed at reducing both cardiac output and splanchnic arterial blood flow, thereby reducing portal pressure. All patients with medium to large sized varices (F2/F3) should have variceal band ligation applied in addition to the propranolol prophylaxis. Recent data suggest that combination therapy of band ligation and beta-blockers reduces the rate of variceal re-bleeding compared with either therapy alone (Dib et al., 2006). Patients with variceal bleeding are equally placed on antibiotics prophylaxis as this had been shown to reduce the risk of further bleeding (Gracia et al., 2007).

5. Conclusion

Upper gastrointestinal endoscopy is therefore recommended in the cirrhotic patients to ameliorate the risk of bleeding and the related high mortality.

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